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United States Department of Agriculture

Soil Conservation Service

Montana Agricultural Experiment Station

Bozeman, Montana

MONTANA WATER SUPPLY OUTLOOK

Snowpack and Streamflow Forecasts as of October 1, 1985

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SNOW SURVEY UNIT
Federal Bldg., Rm. 443
10 East Babcock Street
Bozeman, MT 59715

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The Montana Water Supply Outlook is a publication of the U. S. Soil Conservation Service. The SCS administers the Cooperative Snow Survey Program in cooperation with other federal, state and private agencies, organizations, and individuals.

The report is prepared by SCS, Snow Survey and Water Supply Forecast Staff, Room 443, Federal Building, 10 East Babcock, Bozeman, Montana.

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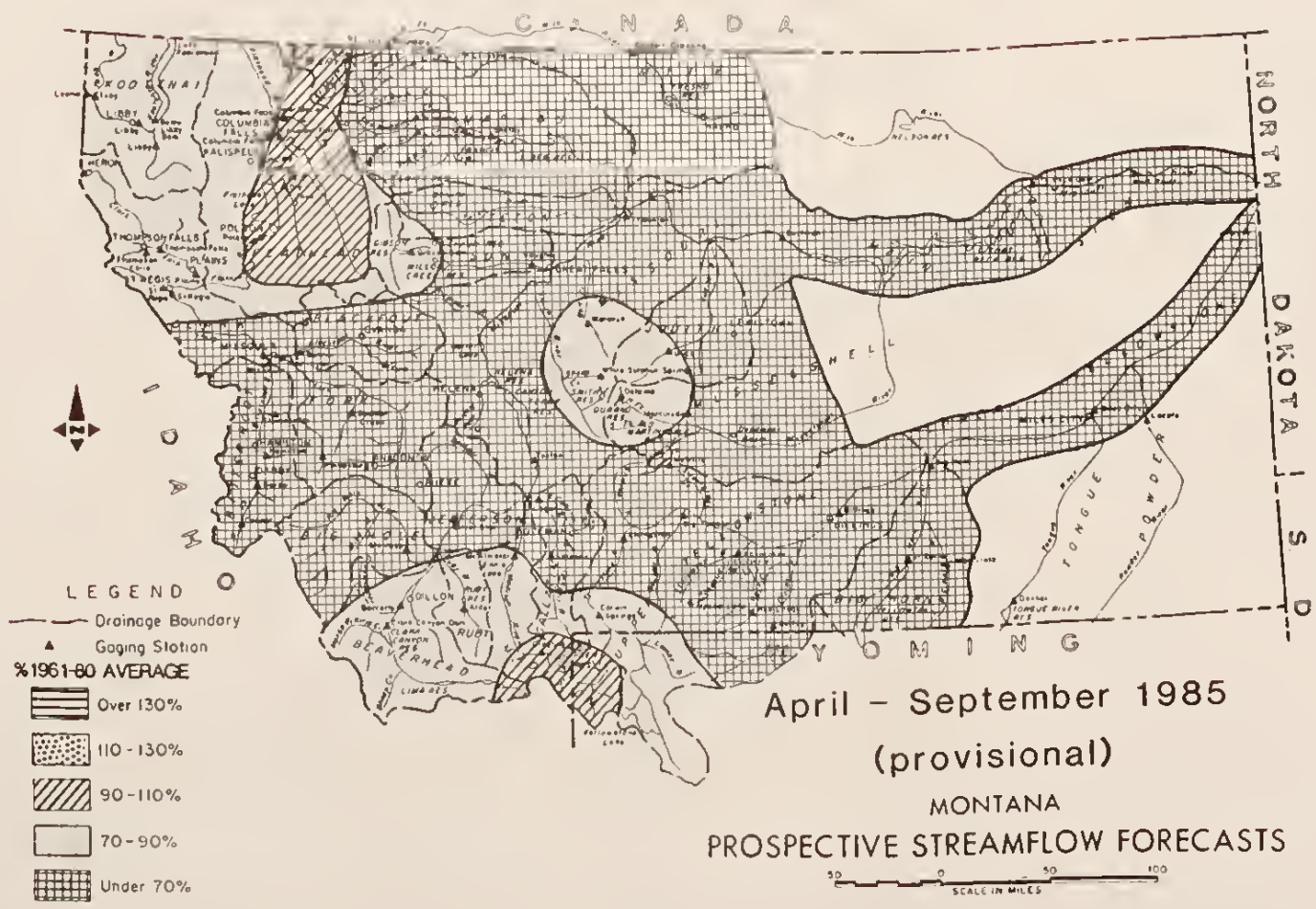
Summary of 1985 snow and precipitation accumulation

The winter season started off well with January 1 snowpack measurements being near to well above average over most of Montana. Around January 1, the moisture flow across the state diminished. Almost all areas received much below average precipitation for the rest of the winter.

By April 1, snowpacks were generally below average across the southern half of the state and near average in the northern part. May and June, usually good moisture months, did not follow the long-term pattern and most stations reported well below average precipitation.

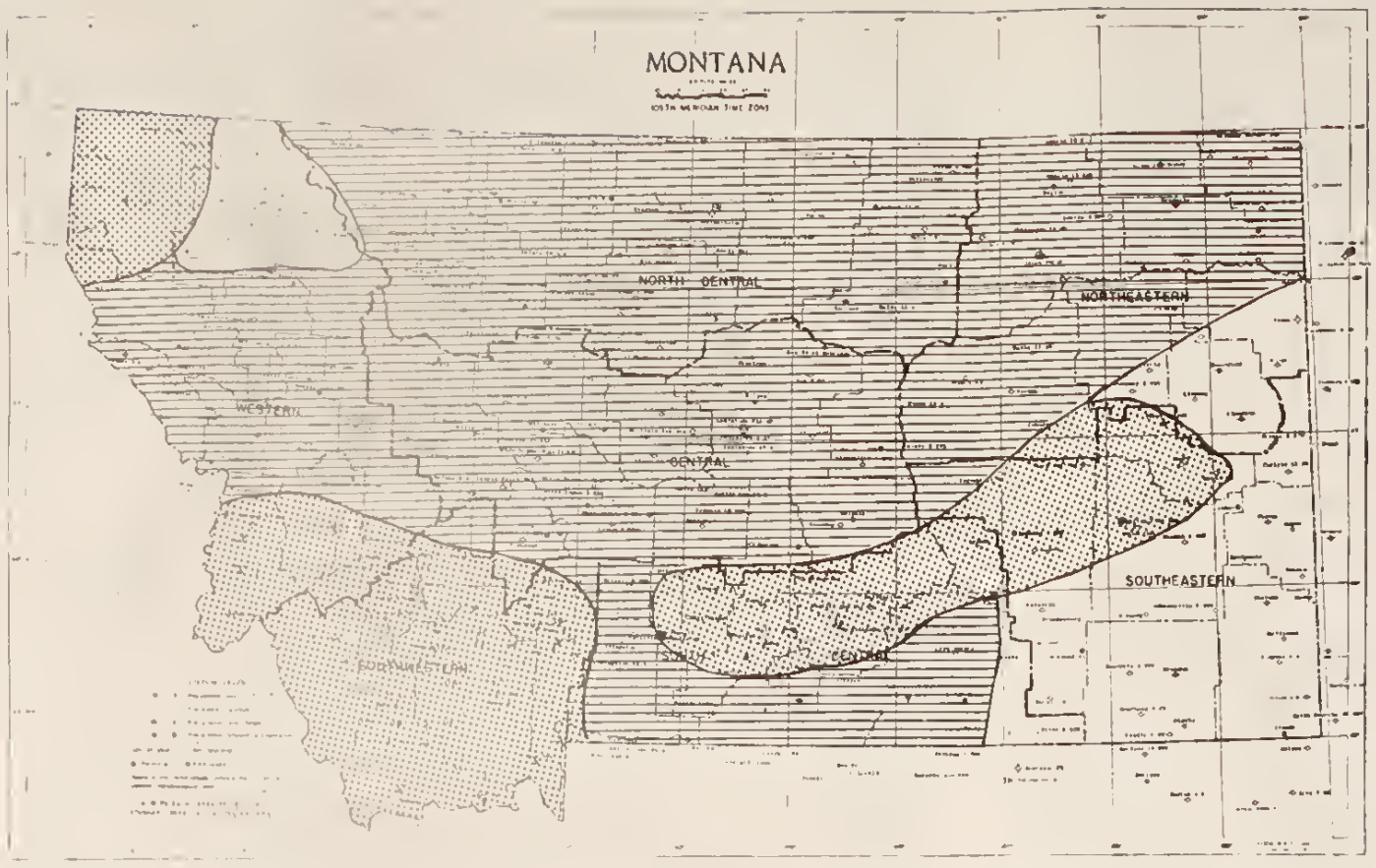
Snowmelt also started about one month ahead of schedule because of warm temperatures. July continued to be dry and warm in most areas with some mountain and valley stations showing zero or near zero amounts of precipitation for the month.

By August, improved moisture patterns brought good rainfall to most areas and ended the 7-month period of deficient moisture. Many locations in the mountains received 4 to 8 inches of precipitation while many valley areas received 2 to 4 inches. September followed the pattern set in August of good moisture. Some high elevations are presently snow-covered and the snowpacks that will provide next spring's runoff are beginning to accumulate.



Based on provisional data provided by:

U.S. Geological Survey
Bureau of Reclamation
National Weather Service
Soil Conservation Service
Montana Power Company
Lima Water Users Irrigation Company
Bitterroot Irrigation District
Pondera County Canal and Reservoir Co.
Butte Water Company
Anaconda Minerals Company
and others



Generally Adequate
Some Shortage
Severe Shortage

SOURCE: Soil Conservation Service

MID AND LATE SEASON IRRIGATION
WATER SUPPLIES FROM UNREGULATED STREAMS

1985 SEASON

Summary of water supplies

Forests, streams, farms, rangeland and municipalities were all affected by the drought conditions during the last year.

Streamflows measured during the April through September period ranged from about 85 to 95 percent of average in the Flathead area and extreme southwest Montana to about 40 to 60 percent of average in the majority of the state's mountain watersheds.

Mid-season irrigation water supplies were very short over most of the state. Storage in many irrigation reservoirs was depleted by late July with most irrigation reservoirs empty or nearly empty by the end of the irrigation season. Relief was observed in some areas with the August rains. By September, soil moisture reserves had been partially replenished and streamflows were starting to respond after rainfall. Flows were increasing to average or above average amounts. Likewise, storage in many irrigation reservoirs increased in the last 2 months.

Presently, soil moisture stored in the mountain soils is quite good. Most headwater areas are reported to have average to above average levels of soil moisture.

1985 SNOW COVER COMPARISONS (as a percent of average)

	JAN.1	FEB.1	MAR.1	APR.1	MAY 1
COLUMBIA RIVER DRAINAGE					
Kootenai	157	96	97	91	85
Flathead	150	104	98	96	89
Upper Clark Fork	115	85	85	86	66
Lower Clark Fork	180	114	105	100	91
Bitterroot	121	87	88	86	78
MISSOURI RIVER DRAINAGE					
Jefferson	123	89	85	86	63
Madison	122	88	85	87	66
Gallatin	92	73	77	77	58
Missouri Main Stem	119	91	92	92	69
Judith-Musselshell	115	91	95	94	70
Marias-Teton-Sun	156	98	96	92	83
Milk	172	116	114	106	90
YELLOWSTONE RIVER DRAINAGE					
Yellowstone (Above Bighorn)	99	73	77	81	61
Bighorn	95	71	75	74	54
Little Bighorn	97	74	78	73	64
Tongue	98	83	87	78	66
Powder	--	84	63	72	38
SASKATCHEWAN RIVER DRAINAGE					
St. Mary's	156	106	101	96	91

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH September 30, 1985

BASIN OR STREAM	RESERVOIR	USABLE CAPACITY	USABLE STORAGE THIS YEAR	LAST YEAR	AVERAGE
	COLUMBIA				
Kootenai	Koocanusa	5,748.2	5,086.0	5,532.0	5,164.0
Flathead	Hungry Horse	3,451.0	2,678.0	3,081.0	3,189.0
	Flathead Lake	1,791.0	1,767.0	1,747.0	1,735.0
	Camas (4)	45.2	16.7	16.8	18.1
	Mission Valley (8)	100.3	32.1	22.1	26.8
Clark Fork	Georgetown Lake	31.0	23.1	29.1	28.3
	Lower Willow Creek	4.9	0.5	0.8	0.9
	Nevada Creek	12.6	2.3	3.5	4.0
	Noxon Rapids	334.6	317.6	312.1	326.4
Bitterroot	Painted Rocks	31.7	---	---	22.6
	Como	34.9	0.6	7.4	2.5
	MISSOURI				
Beaverhead	Lima	84.0	14.5	30.4	30.0
	Clark Canyon	255.6	92.8	158.2	120.6
Ruby	Ruby	38.8	8.0	18.6	11.8
Madison	Hebgen Lake	377.5	357.2	376.0	336.5
	Ennis Lake	41.0	35.1	38.1	36.7
Gallatin	Middle Creek	8.0	3.7	5.2	3.1
Missouri	Canyon Ferry	2,043.0	1,630.0	1,616.0	1,748.0
	Hauser & Helena	61.9	63.0	63.0	58.9
	Helena Valley	9.2	5.9	7.4	6.9
	Lake Helena	10.4	10.9	10.9	10.4
	Holter Lake	81.9	81.0	81.4	77.8
	Fort Peck Lake	18,910.0	14,140.0	16,990.0	16,090.0
Smith	Smith River	10.6	3.5	7.0	5.6
	Newlan Creek	12.4	9.5	9.9	10.1
Musselshell	Bair	7.0	0.0	0.0	3.2
	Martinsdale	23.1	0.2	3.3	9.7
	Deadman's Basin	72.2	11.9	26.4	35.4
Sun	Gibson	99.1	43.9	18.2	29.1
	Willow Creek	32.2	15.1	10.3	19.4
	Pishkun	30.4	19.8	19.8	16.7
Marias	Lower Two Medicine	11.9	---	---	4.6
	Four Horns	19.2	---	---	11.6
	Swift	30.0	8.2	11.2	11.9
	Lake Frances	111.9	32.5	13.0	71.2
	Elwell (Tiber)	1,347.0	794.4	701.1	606.7
Milk	Beaver Creek	3.5	2.0	3.6	2.1
	Fresno	103.0	52.0	17.9	67.6
	Nelson	66.8	14.3	7.7	42.1
	HUDSON BAY				
St. Mary's	Lake Sherburne	64.8	4.2	20.5	7.6
	YELLOWSTONE				
Stillwater	Mystic Lake	21.0	19.7	19.1	19.5
Clark's Fork	Cooney	27.4	9.2	17.4	13.2
Tongue	Tongue River	68.0	12.5	15.9	24.8
Bighorn	Bighorn Lake	1,356.0	875.1	1,088.0	749.0

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